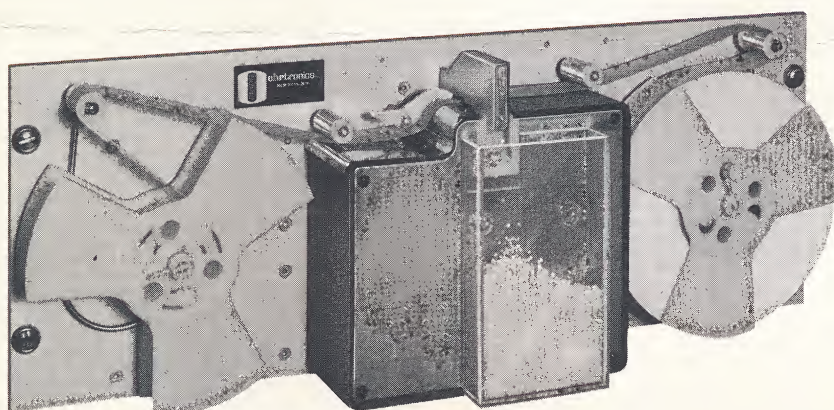




ohr-tronics PRODUCT INFORMATION

tape punch



MODEL 110R TAPE PUNCH

SERIES 110

Series 110 Tape Punch has been designed to accept coded electrical data (serially by character and parallel by bit) and record this data in the form of holes on paper or mylar tape.

FEATURES

Punches 5 to 8 channel paper or mylar tape

Speed, 0-30 characters per second asynchronously

Can be electrically interlocked with connected equipment

Reversing electromagnet for back-spacing tape

Standard 19" panel mount (7" x 19")

Switches on electromagnets for error checking, pulse stretching or holding circuitry

All coils rated for continuous duty

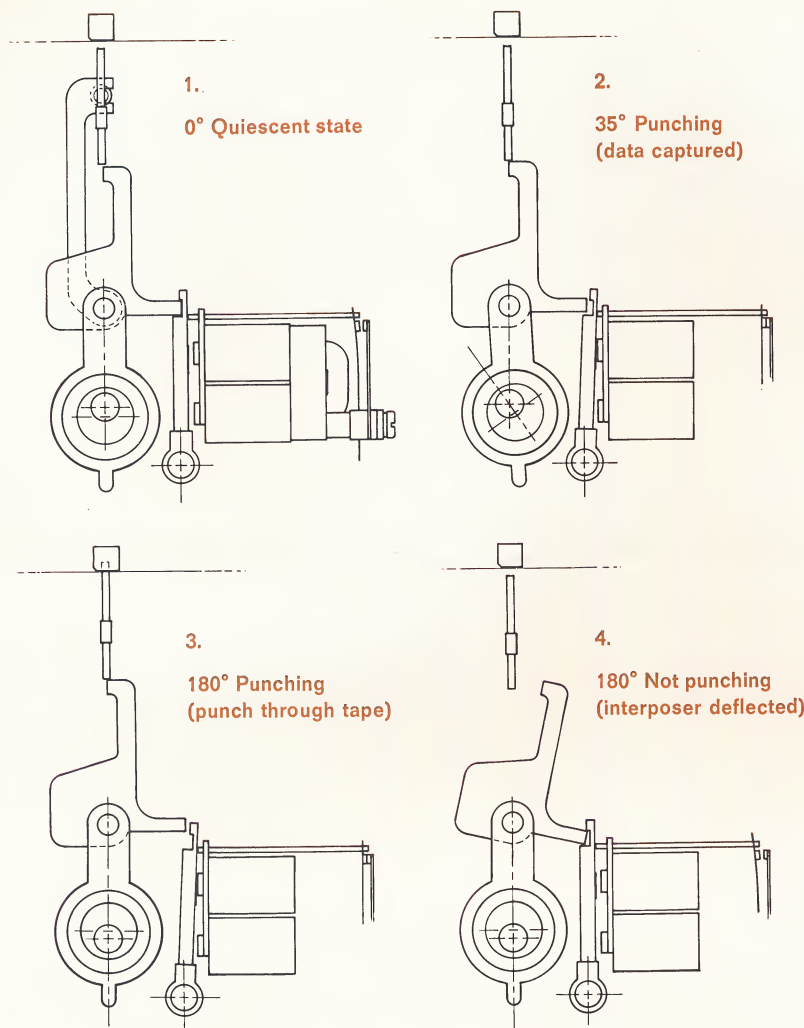
Easily removable front chad cup

All coils can be arc suppressed with diodes

The series 110 Tape Punch punches standard 5 to 8 channels in paper or mylar tape, asynchronously at speeds up to 30 characters per second. The unit is powered from a continuously running motor. Holes are punched in tape in response to input pulses into 8 electromagnets which set up interposers for punch pin actuation. Error detection can be accomplished by the use of the punch magnet contacts in conjunction with error detection circuitry. Punching can be inhibited in the event of an error. Tape can be backspaced by energizing the backspacing electro-magnet.

All punches are backed up by a full one year warranty on parts and labor.

METHOD OF PUNCHING



Interposers are mounted on an interposer shaft. When the camshaft is rotated through a single revolution, eccentric lobes on the camshaft move the interposer shaft vertically to drive the interposers upward towards the punch pins, which perforate the tape.

When a data magnet is energized, its corresponding armature is attracted and held away from its interposer, as shown in fig. 2. This releases the interposer arm, so that the interposer may move vertically to engage the punch pin.

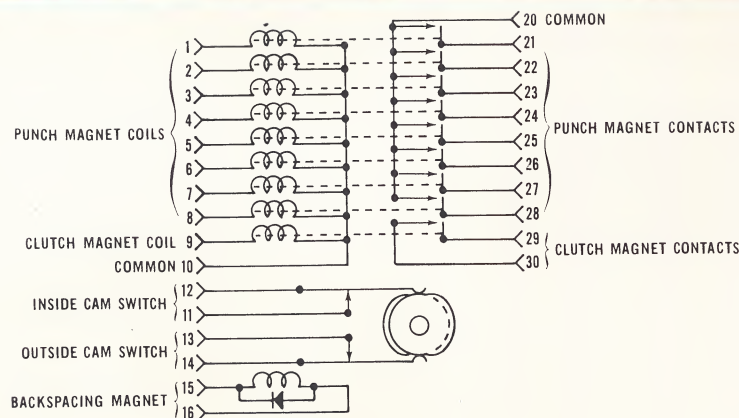
Simultaneously with the energization of the data magnets, the clutch magnet is operated to couple

the motor to the camshaft. Punching occurs when the camshaft rotates to its 180° position, moving the interposer upward to drive the punch pin through the tape, as shown in fig. 3.

A data magnet which is not energized is shown in figs. 1 & 4. As the camshaft is rotated to the 180° position, the interposer is latched by magnet armature and is deflected away from punch pin, preventing tape perforation.

During the downward return stroke of the interposer shaft, all punches are positively withdrawn from the tape by means of stripper shaft and stripper links, as shown in fig. 1.

ELECTRICAL SCHEMATIC



SPECIFICATIONS

GENERAL

Number of tape channels

8

Data hole size

0.072" Dia. on 0.100" centers
(EIA Std. RS-227)

Feed hole size

0.046" Dia.
(EIA Std. RS-227)

Tape widths

Adjustable for 0.687, 0.875 and
1.000 inches

Connector

Amphenol mating connector
supplied with unit.

Punching speed

0 to 30 characters per second,
asynchronously.

DRIVE

Motor

Induction 1/15 HP.
115 volt 60 cycle single phase
motor runs continuously

PUNCH MAGNETS

Voltage

24 VDC or 48 VDC

Pull in time

10 to 15 milliseconds

Power

5 watts per punch magnet. Coils
are rated for continuous duty.

Punch magnet contacts

8 Form A. 1 side common. 2 AMP.
Used for error checking, pulse
stretching, or holding circuitry.

CLUTCH

Voltage

24 VDC or 48 VDC

Pull in time

10 to 15 milliseconds

Power

5 watts. Coil is rated for
continuous duty.

Clutch magnet contact

Form A. 2 AMP.

TIMING

Clutch Magnet may be energized
simultaneously with punch
magnets. No time delay or special
circuitry is required.

2 CAM SWITCHES

On time adjustable from 135
degrees to 245 degrees. Phasing
adjustable in 15° increments.

BACK-SPACING MAGNET

Voltage

24 VDC or 48 VDC

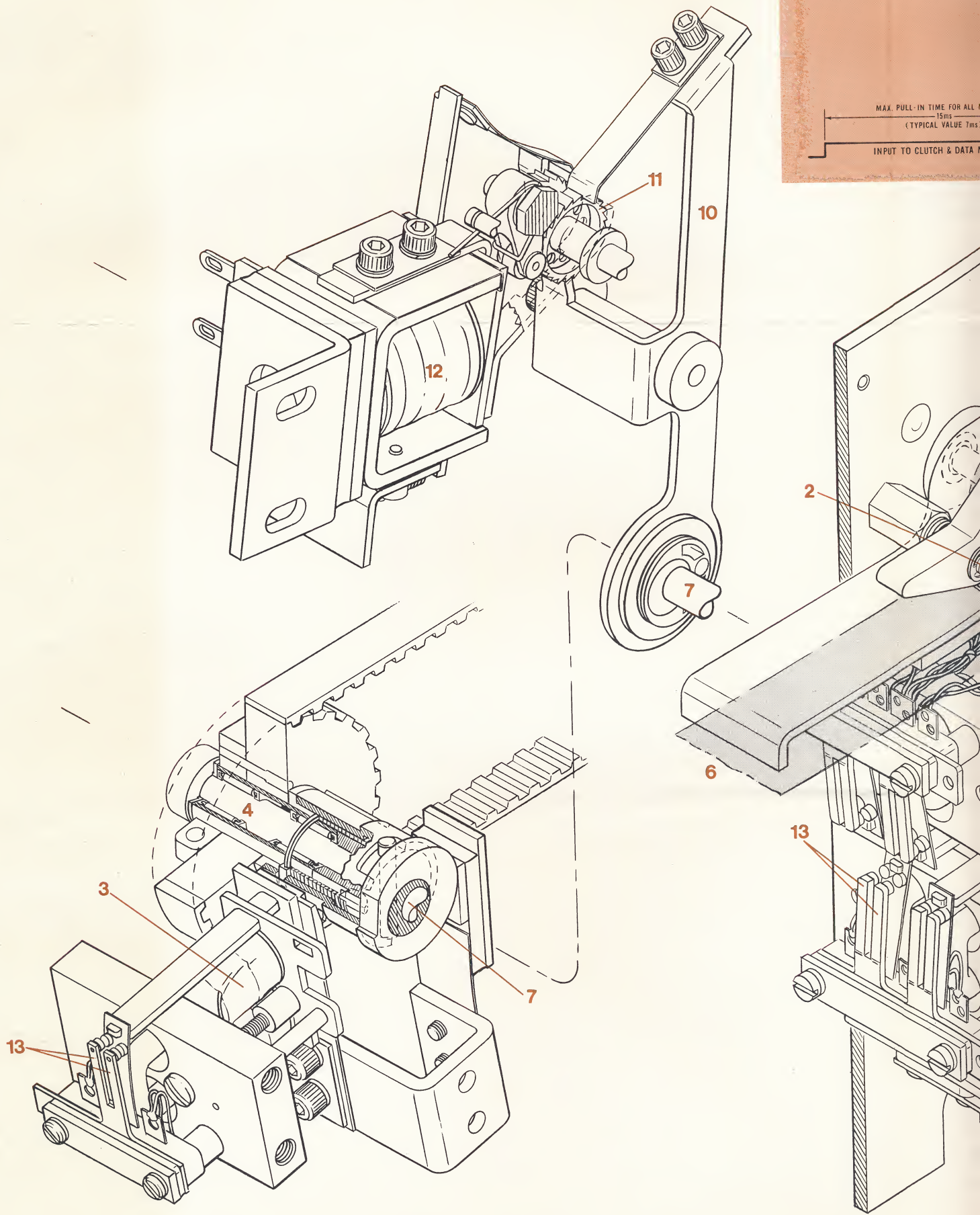
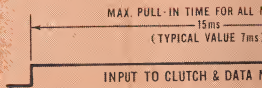
Power

17 watts nominal, continuous duty.

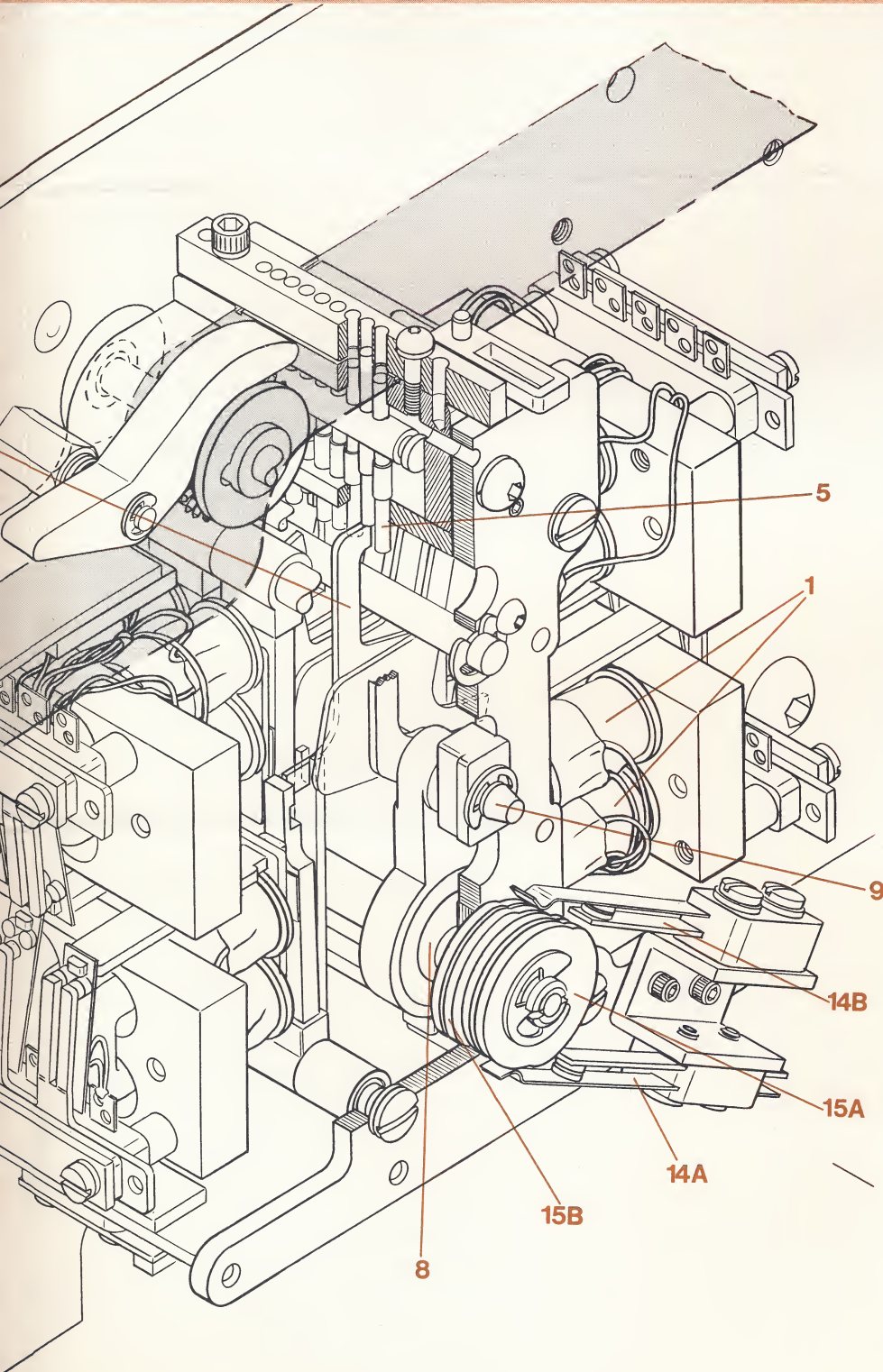
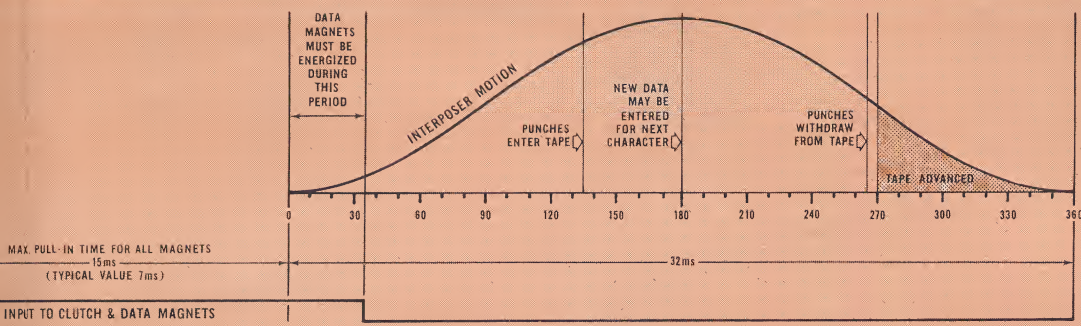
TAPE SENSING SWITCHES

Tight Tape Switch
Tape Break Switch

TIMING



PRINCIPLES OF OPERATION



The Series 110 Tape Punch operates in response to signals to 8 electromagnets (1) which control punch pin interposers (2). A clutch electromagnet (3) controls a single-revolution clutch (4).

A constantly rotating electric motor supplies the mechanical power to drive the punch pins (5) through the tape (6). When the clutch electromagnet (3) is energized, it couples the motor to the camshaft (7). As the camshaft (7) makes its revolution, the eccentric cam (8) moves the interposer shaft (9) vertically. Interposers (2) mounted on this interposer shaft (9) drive their corresponding punch pins (5) through the tape (6) when their corresponding electromagnets (1) are energized.

The camshaft (7) during its single revolution also oscillates the feed arm (10) which drives the ratchet wheel (11) to move the tape (6) forward during the last quadrant of camshaft (7) rotation.

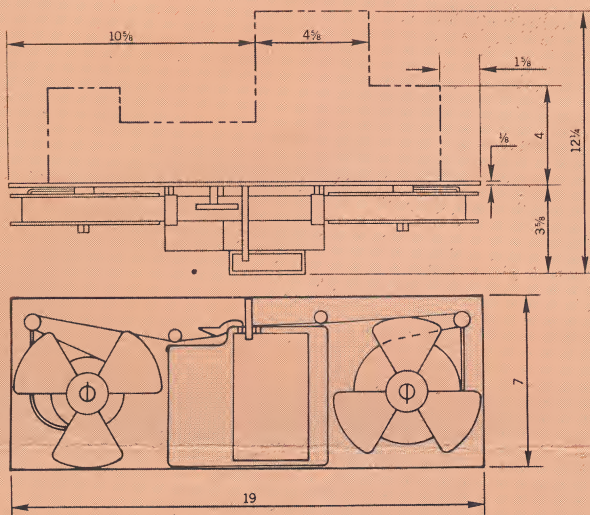
A backspace magnet (12) is provided to step the tape in the reverse direction. Bifurcated contacts (13) are provided on the interposer and clutch magnets for error checking and other circuitry functions. Two cam contacts (14a and 14b) are provided to control the duration of the pulses into the electromagnets, to interlock the unit with connected equipment, and for other circuitry functions.

The two cams (15a and 15b) are independently mounted on the camshaft (7) and the on-time is adjustable from 135° to 245°. Each can be phased in 15° increments. All the electrical points are brought out to the connector.

INHIBITS PUNCHING IN THE EVENT OF AN ERROR IN PARITY

A unique feature of the Series 110 Tape Punch is its ability to inhibit punching should a parity error occur. When wired in a parity checking mode (even or odd bit parity), the signal to the clutch coil of the punch will come from the parity circuit. Should parity exist, the clutch magnet is operated through the closed parity circuit, but should parity be "false", the signal will not get through and punching will be inhibited *before* the tape is perforated.

DIMENSIONS



DESIGN ELEMENTS OF THE SERIES 110 PUNCH

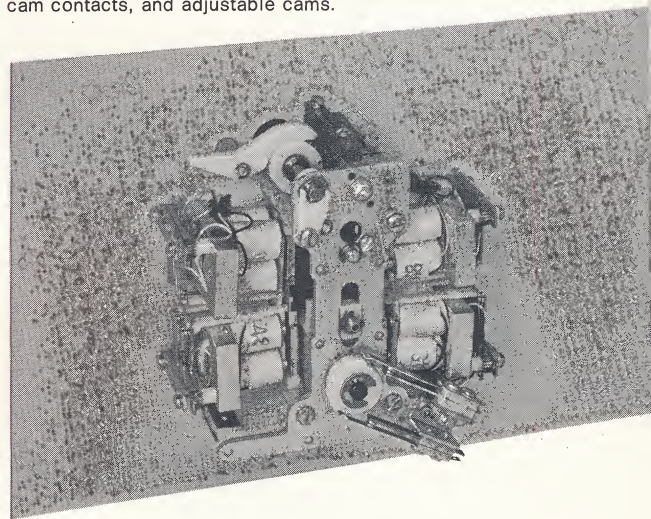
SYSTEM

- 1 All coils are rated for continuous duty.
- 2 Low inertia parts are used for quiet, high speed operation.
- 3 Punch and die assembly easily replaceable in the field.
- 4 Front loading, high capacity transparent chad cup.
- 5 Simple and fast tape loading.
- 6 Backspace magnet for reverse stepping of tape.
- 7 Punch is designed for standard 19 inch panel mounting.
- 8 Switches on clutch and data magnet armatures are provided for error checking and other circuit functions.
- 9 Supply and take up reels are individually motor driven and dancer arm controlled to provide proper pay out and take up of tape.
- 10 Tight tape and broken tape switch contacts are provided.
- 11 Critical pulse widths and regulated power supply levels are not required.

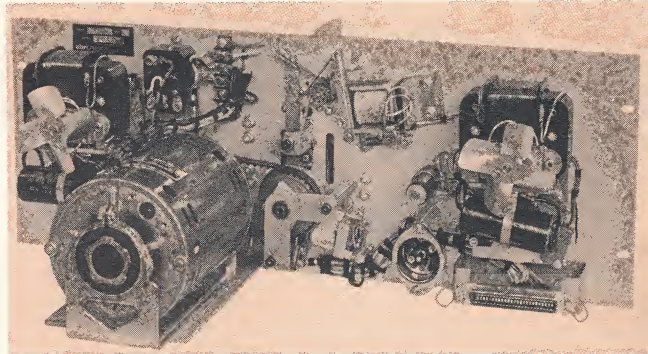
CLUTCH

- 1 Pulley and input hub rotate on needle bearings.
- 2 Camshaft rotates on ball bearings.
- 3 Wrap spring does *not* have formed ends which are subject to fatigue failure.
- 4 Usual set-screw adjusting collar, which tends to loosen in operation, has been eliminated. Adjustment is accomplished by selection of appropriate woodruff key.
- 5 End of camshaft is cored to allow periodic grease packing for clutch lubrication.
- 6 Entire clutch and camshaft assembly is easily removable from unit for service or replacement.
- 7 Mass of clutch parts are minimized for maximum speed.
- 8 Clutch armature and backstop pawl are rubber-bonded assemblies for shock and noise absorption.

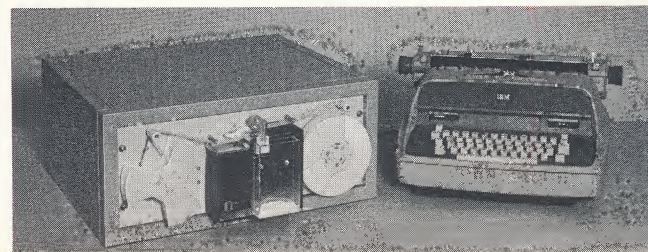
Tape punch with front cover removed showing data magnets, cam contacts, and adjustable cams.



Rear view of model 110R tape punch showing drive motor, clutch mechanism, and individual spooler motors for supply and take up reels.



Tape punch in desk top cabinet with input-output typewriter.





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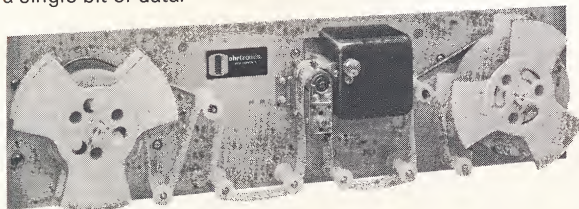
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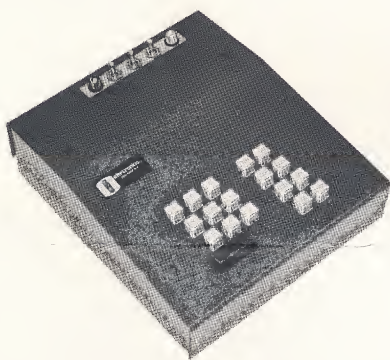
OTHER ohr-tronics PRODUCTS

The Series 119 Paper Tape Reader reads up to 8 channel punched paper tape, bi-directionally, at speeds up to 30 c.p.s. The simplicity of design accounts for its high degree of reliability. The basic mechanism has been life tested for 125,000,000 characters (and error checked) without losing a single bit of data.



SERIES 119 TAPE READER

The series 117 Encoding Keyboard converts key depressions into coded (8 level) arrays of switch closures, and is designed to interface with tape punches, printers, plotters, computers, or other automatic machinery. Any code configuration can be supplied. The code is contained in the form of removable tabs on each key lever, and code changes can be made in the field. The keys are mechanically interlocked to prevent simultaneous depressions of two or more keys. The keyboard can also be electrically interlocked and slaved to the connected equipment.



SERIES 117 ENCODING KEYBOARD

The Model 124 Flexi-bit Punch is designed for those applications that require the maximum flexibility of single hole bit punching. The unit punches tape conforming to the new E.I.A. Standard RS-227. The Flexi-bit Punch features a precision sprocket wheel mechanism for simplified tape loading and easy forward and reverse tape stepping. The device will punch paper or Mylar tape, and will accept pre-sprocketed or blank tape.



MODEL 124 FLEXI-BIT PUNCH

ORDERING NOMENCLATURE

Suffix letters are used to designate desired features.

MODEL 110 Basic 0-30 character per second punch mounted on 7" x 19" panel

MODEL 110R Model 110 punch with 6" spoolers (600 foot capacity) mounted on 7" x 19" panel

SUFFIX G Graphic arts tape format (advanced feed hole)

SUFFIX T Reverse tape orientation

SUFFIX D Small panel, 7" x 11" No spoolers (Model 110 only)

SUFFIX P Parity Switches

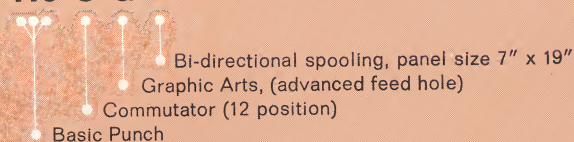
SUFFIX S Supply reel only. Panel size 7" x 19" (Model 110R only)

SUFFIX C 12 Position commutator added to drive for block punching

SUFFIX M Less motor drive

EXAMPLE:

110 C G R



Note: The DC voltage must be specified. 24 and 48 VDC are standard. All AC motors are 115 Volt, 60 cycle, unless otherwise specified in order.

For additional information contact our local representative in your area.

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Dear Sir:

Enclosed is the latest information on the OHR-TRONICS lines of peripheral data processing equipment.

May we at OHR-TRONICS be of further service to you?

Our engineering applications group can provide assistance in integrating our products into your system. Feel free to call collect.

Our representative in your area has been informed of your interest in our products and will be calling on you in a few days to arrange a demonstration and to discuss your particular application.

Very truly yours,

J. H. Drillick
J. H. Drillick

OHR-TRONICS, INC.

JHD:jb
Enclosure